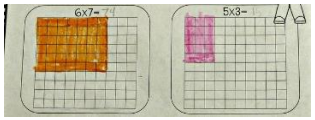
The Maths Curriculum at Hindhayes

Maths - Multiplication and Division

Hindhayes INFANT SCHOOL



Hooked on Thinking

Working With and For Local Families

Recent research shows us that:
Improving Mathematics in the Early Years and Key Stage One (EEF 2020) make the following recommendation: Use manipulatives and representations to develop understanding. Ensure that children understand the links between the manipulatives and the mathematical ideas they represent.

Developing multiplication and division skills at Hindhayes - The journey towards understanding multiplication begins with making 'groups of', where the children will work with concrete materials to group them into 2s, 5s or tens. We understand that these groups are constant and that we can become more efficient in counting them by counting in steps of 2, 5 or 10. Active counting games support counting forwards and backwards in steps of 2, 5 or 10. Investigation into the patterns found when counting in these steps allow the children to spot comparisons and make connections. Reasoning and problem solving around statements such as *True or false - numbers in the 2 times table never have a 9 in them.* We want the children to make practical applications with their skills, such as counting coins, 10 gram weights and tally charts so that they see real purpose for their learning. As always, making clear links within their learning is imperative, making the use of stem sentences very powerful – if I know 5 + 5 + 5 + 5 =20, then I also know 4 X5 = 20. As children approach year 2, we study commutativity and deriving unknown facts from facts that we know eg I know 10 x 5 = 50, so 12 x 5= 50 + 5 + 5. Links between division and multiplication are then made, with the use of arrays to support division as grouping. Making fact families using division and multiplication further strengthens these connections. Please see CLP Calculation policy for agreed calculation methods.

Essential Prior Knowledge:	Development of skills **Foundation Stage**	**Year 1**	**Year 2**	**Year 3**
Objects can be counted. Developing 1:1 correspondence. **Development Matters 3&4 year olds will be learning to:** Link numerals and amounts: for example, showing the right number of objects to match the numeral 5. Solve real world mathematical problems with numbers up to 5.	ELG- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. ***Children explore number and number patterns. They develop skills in sorting items into groups, discovering what we mean by the term 'equal'. They are encouraged to investigate if groups of objects, pictures of dots or numerals are the same. They share stories that support the concept of 'equal' and play out scenarios in the role play area eg making sure the teddies have equal amounts of cakes for the picnic. The concept of doubling is introduced practically using towers of cubes that can be readily compared and discussed. Creative opportunities such as butterfly prints further support their understanding of doubling.***	Children count forwards and backwards in 2s, 5s and 10s. solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. ***Being able to count confidently in steps of 2, 5 and 10 is developed throughout year 1. Children continue to make links about counting in equal groups and use practical resources such as numicon pieces, pairs of socks, hand prints to cement this understanding. Links are made to money, place value, doubles, real life problems to highlight opportunities to use these skills. Children learn to skip count forwards and backwards in 2s, 5s and 10s using concrete, pictorial and then abstract learning opportunities. Children are also taught to count in 'lots of' a number – one lot of 2 is 2, 2 lots of 2 is 4 etc. Problems are calculated using practical resources and are recorded using repeated addition. Division is explored by sharing objects into equal groups. It is used primarily at this stage to support problem solving eg Carl has 10 cars and wants to share them with his brother. How many cars can they each have?***	-recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers -calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs -show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot -solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts ***Learning in year 2 builds on the knowledge and understanding learnt so far. Confident and quick recall of the 2, 5 and 10 times tables remain a priority. Counting in steps of 3 is also introduced to support future work on finding a third of an amount. Problems are solved by making equal groups of concrete apparatus and are then recorded as repeated addition. Children investigate different ways of grouping the same number. The multiplication symbol is introduced as meaning 'lots of'. Children make links between the different representations, language and symbols when investigating problems. Commutativity is proven through practical means and by the use of arrays. Division is continued to be explored by sharing and then by grouping. Links are made back with our knowledge of multiplication eg If I know 3x2 =6 then I also know 6 ÷2 = 3.***	-recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables -write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, -using mental and progressing to formal written methods solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to objects.
	Key Vocab sharing doubling halving number patterns	Key Vocab Once, twice, three, five times, multiple of times, lots of, repeated addition, array, row, column, double, halve, share, share equally, group in pairs, threes, etc., equal groups of,	Key Vocab Multiply, multiply by , array, row, column, divide, divided by, left over	